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EXAMINER

NGUYEN, PHUONGCHAU BA

ART UNIT

PAPER NUMBER

2464

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/751,001	Applicant(s) LI ET AL.	
	Examiner PHUONGCHAU BA NGUYEN	Art Unit 2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Terminal Disclaimer

1. The terminal disclaimer filed on 11-23-09 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/748,306 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 7, 11-12, 16, 20, 23, 26-27, 29, 31-32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling (6,771,706) in view of Fujii (US 2004/0062302 A1).

Regarding claim 1,

Ling (6,771,706) discloses a method, including:

transmitting, from a transmitter (110-fig.1) to a receiver (receiver system 150-fig.1), a first number of training symbols corresponding to a first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3,

line 6-col.5, line 46) to solicit a response including a second number of training symbols corresponding to a second number of communication chains (154a-154r, fig.5);

Ling does not explicitly “*without requiring channel state information (CSI) feedback*”.

However, in the same field of endeavor, Fujii (US 2004/0062302 A1) discloses “*without requiring channel state information (CSI)*” {see 0007-0027 and figure 2 wherein a transmitter 10-fig.2 generates a symbol stream $s(k)$ with training symbol $s_{tr}(k)$ from a training symbol stream generator 14-fig.2 and being transmitted after being converted to the radio frequency band to a receiver 20-fig.2 over a transmission channel (each multi-path channel) to a receiver 20}. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Fujii’s teaching of transmitting the symbol stream with training symbol being generated by the training symbol generator to Ling’s system with the motivation being to allow Ling’s transmitter capability to generate and transmit symbol streams using the training symbol generator which does not require CSI feedback from a receiver so that to provide excellent reception characteristic with low computational complexity and reduce interference and BER.

Regarding claims 2, 12 & 29, Ling further discloses wherein the first number of communication chains (122a-122t, fig.3) corresponds to a number of receive chains (154a-154r, fig.5), and wherein the second number of communication chains (154a-154r, fig.5) corresponds to a number of transmit chains (122a-122t, fig.3).

Regarding claims 7, 16 & 27, Ling further discloses wherein the first number of communication chains corresponds to a number of transmit chains (122a-122t, fig.3), and wherein the second number of communication chains corresponds to a number of receive chains (154a-154r, fig.5).

Regarding claim 11,

Ling (6,771,706) discloses a method, including: ()

receiving, at a receiver (150-fig.1) from a transmitter (transmitter system 110-fig.1), a first number of training symbols corresponding to a first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46); and

transmitting, from the receiver to the transmitter, a second number of training symbols corresponding to a second number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) in response to receipt of the first number of training symbols (154a-154r, fig.5).

Ling does not explicitly “*without requiring channel state information (CSI) feedback*”.

However, in the same field of endeavor, Fujii (US 2004/0062302 A1) discloses “*without requiring channel state information (CSI) feedback*” {see 0007-0027 and figure 2 wherein a transmitter 10-fig.2 generates a symbol stream $s(k)$ with training symbol $s_{tr}(k)$ from a training symbol stream generator 14-fig.2 and being transmitted after being converted to the radio frequency band to a receiver 20-fig.2 over a transmission channel (each multi-path channel) to a receiver 20}. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Fujii’s teaching of transmitting the symbol stream with training symbol being generated by the training symbol generator to Ling’s system with the motivation being to allow Ling’s transmitter capability to generate and transmit symbol streams using the training symbol generator which does not require CSI feedback from a receiver so that to provide excellent reception characteristic with low computational complexity and reduce interference and BER.

Regarding claim 20,

Ling (6,771,706) discloses an article including a machine-accessible medium (memory 114-fig.3) having associated information, wherein the information, when accessed, results in a machine performing (see 0029 & fig.3):

receiving, at a receiver (150-fig.1) from a transmitter (transmitter system 110-fig.1), a first number of training symbols corresponding to a first number of

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communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46); and

transmitting, from the receiver to the transmitter, a second number of training symbols corresponding to a second number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) in response to receipt of the first number of training symbols (154a-154r, fig.5).

Ling does not explicitly “*without requiring channel state information (CSI) feedback*”.

However, in the same field of endeavor, Fujii (US 2004/0062302 A1) discloses ““*without requiring channel state information (CSI) feedback*” {see 0007-0027 and figure 2 wherein a transmitter 10-fig.2 generates a symbol stream $s(k)$ with training symbol $s_{tr}(k)$ from a training symbol stream generator 14-fig.2 and being transmitted after being converted to the radio frequency band to a receiver 20-fig.2 over a transmission channel (each multi-path channel) to a receiver 20}. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Fujii’s teaching of transmitting the symbol stream with training symbol being generated by the training symbol generator to Ling’s system with the motivation being to allow Ling’s transmitter capability to generate and transmit symbol streams using the training symbol generator which does not require CSI feedback from a receiver so that to provide excellent reception characteristic with low computational complexity and reduce interference and BER.

Regarding claim 23,

Ling (6,771,706) discloses an article including a machine-accessible medium (memory 114-fig.3) having associated information, wherein the information, when accessed, results in a machine performing (see 0029 & fig.3):

transmitting, from a transmitter (110-fig.1) to a receiver (receiver system 150-fig.1), a first number of training symbols corresponding to a first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) to solicit (to receive) a response including a second number of training symbols corresponding to a second number of communication chains (154a-154r, fig.5).

Ling does not explicitly “*without requiring channel state information (CSI) feedback*”.

However, in the same field of endeavor, Fujii (US 2004/0062302 A1) discloses ““*without requiring channel state information (CSI) feedback*” {see 0007-0027 and figure 2 wherein a transmitter 10-fig.2 generates a symbol stream $s(k)$ with training symbol $s_{tr}(k)$ from a training symbol stream generator 14-fig.2 and being transmitted after being converted to the radio frequency band to a receiver 20-fig.2 over a transmission channel (each multi-path channel) to a receiver 20}. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Fujii’s teaching of transmitting the symbol stream with training symbol being generated by the training symbol

generator to Ling's system with the motivation being to allow Ling's transmitter capability to generate and transmit symbol streams using the training symbol generator which does not require CSI feedback from a receiver so that to provide excellent reception characteristic with low computational complexity and reduce interference and BER.

Regarding claim 26,

Ling (6,771,706) discloses an apparatus, comprising:

a first number of communication chains to transmit to a device (destination node) a first number of training symbols corresponding to the first number of communication chains(122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) and to receive a response from the device (destination node) including a second number of training symbols corresponding to a second number of communication chains included in the device (154a-154r, fig.5).

Ling does not explicitly "*without requiring channel state information (CSI) feedback*".

However, in the same field of endeavor, Fujii (US 2004/0062302 A1) discloses "*without requiring channel state information (CSI) feedback*" {see 0007-0027 and figure 2 wherein a transmitter 10-fig.2 generates a symbol stream $s(k)$ with training symbol $s_{tr}(k)$ from a training symbol stream generator 14-fig.2 and being transmitted after being

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converted to the radio frequency band to a receiver 20-fig.2 over a transmission channel (each multi-path channel) to a receiver 20}. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Fujii's teaching of transmitting the symbol stream with training symbol being generated by the training symbol generator to Ling's system with the motivation being to allow Ling's transmitter capability to generate and transmit symbol streams using the training symbol generator which does not require CSI feedback from a receiver so that to provide excellent reception characteristic with low computational complexity and reduce interference and BER.

Regarding claim 31,

Ling (6,771,706) discloses a system, including:

a first device (source node) having a first number of communication chains to transmit a first number of training symbols corresponding to the first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46); and

a second device (destination node) having a second number of communication chains to receive the first number of training symbols (154a-154r, fig.5), and to respond by transmitting to the first device a second number of training symbols corresponding to the second number of communication chains (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.6, line 20).

Ling does not explicitly “*without requiring channel state information (CSI) feedback*”.

However, in the same field of endeavor, Fujii (US 2004/0062302 A1) discloses ““*without requiring channel state information (CSI) feedback*” {see 0007-0027 and figure 2 wherein a transmitter 10-fig.2 generates a symbol stream $s(k)$ with training symbol $s_{tr}(k)$ from a training symbol stream generator 14-fig.2 and being transmitted after being converted to the radio frequency band to a receiver 20-fig.2 over a transmission channel (each multi-path channel) to a receiver 20}. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Fujii’s teaching of transmitting the symbol stream with training symbol being generated by the training symbol generator to Ling’s system with the motivation being to allow Ling’s transmitter capability to generate and transmit symbol streams using the training symbol generator which does not require CSI feedback from a receiver so that to provide excellent reception characteristic with low computational complexity and reduce interference and BER.

Regarding claim 32, Ling further discloses a first number of antennas corresponding to the first number of communication chains (figs. 1-3 & also see col.1, lines 43-56); and a second number of antennas corresponding to the second number of communication chains (figs.1-3 & 5, col.1, lines 43-56).

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Regarding claim 35, Ling further discloses wherein the number of communication chains (122a-122t, figs. 1 & 3) are capable of being coupled to a number of antennas (124a-124t, figs. 1 & 3) to form a portion of a multiple-input, multiple-output (MIMO) system (figs. 1-3 & 5, col.1, lines 43-56 & see also col.3, line 6-col.6, line 20 and col.11, line 55-col.17, line 60).

4. Claims 3-6, 8-9, 13-15, 17-18, 21-22, 24-25, 28, 30, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling in view of Fujii as applied to claims 1, 11, 20, 23, 26, 31 above, and further in view of Whitehill (US 2002/0191573 A1).

Regarding claims 13 & 21, Ling discloses (receiver 150-fig.5) receiving the first number of training symbols (modulation symbols) at the second number of communication chains (154a-154r, fig.5).

Ling- Fujii does not explicitly disclose receiving a clear to transmit response; and estimating a communications channel associated with the second number of communication chains based on the first number of training symbols.

However, in the same field of endeavor, Whitehill discloses receiving a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) and estimating a channel associated with the second number of communication chains based on the first number of training symbols (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added).

Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 15 & 22, Ling further discloses transmitting the second number of training symbols (modulation symbols) and data (figs. 1-3, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46).

Ling- Fujii does not explicitly disclose calibrating a number of transmit and receive chains included in the second number of communication chains based on the second number of training symbols.

However, in the same field of endeavor, Whitehill discloses calibrating a number of transmit and receive chains included in the second number of communication chains based on the second number of training symbols (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

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Regarding claim 17,

Ling discloses transmitting the second number of training symbols (modulation symbols) (122a-122t, fig.3, see also figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46).

Ling- Fujii does not explicitly disclose transmitting a clear to transmit response; and calibrating the second number of communication chains.

However, in the same field of endeavor, Whitehill discloses transmitting a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) transmitting a clear to transmit response; and calibrating the second number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claim 18, Ling discloses (receiver 150-fig.5) receiving the first number of training symbols (modulation symbols) (154a-154r, fig.5, see also figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46).

Ling- Fujii does not explicitly disclose receiving a request to transmit; and estimating a channel associated with the second number of communication chains.

However, in the same field of endeavor, Whitehill discloses receiving a request to transmit response (RTS, steps 1000,1010, 1030-fig.5 & see also 0051-0052) and estimating a channel associated with the second number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 8 & 24, Ling- Fujii does not explicitly disclose transmitting a request to transmit and the first number of training symbols; and calibrating the first number of communication chains.

However, in the same field of endeavor, Whitehill discloses transmitting a request to transmit response (RTS, step 1000-fig.5 & see also 0050) transmitting a clear to transmit response and the first number of training symbols from the first number of communication chains; and calibrating the first number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious

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to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 9, 25 & 34, Ling discloses (receiver 150-fig.5) receiving the second number of training symbols.

Ling- Fujii does not explicitly disclose receiving a clear to transmit response and estimating a channel associated with the first number of communication chains.

However, in the same field of endeavor, Whitehill discloses receiving a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) and estimating a channel associated with the first number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

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Regarding claim 3, Ling- Fujii does not explicitly disclose receiving a request to transmit at the first number of communication chains; and determining a transmit power level and a receive gain level associated with the first number of communication chains.

However, in the same field of endeavor, Whitehill (US 2002/0191573 A1) discloses (a destination node) receiving a request to transmit (RTS) at the first number of communication chains (i.e., 154a-154r, fig.5 of Ling), see 0050 & step 1000-fig.5; and determining a transmit power level and a receive gain level (i.e., determining the power-level and gain, see also 0053 and steps 1010 & 1050-fig.5) associated with the first number of communication chains, see 0051-0052. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 4 & 14, Ling- Fujii does not explicitly disclose determining multiple transmit power levels and receive gain levels associated with the first number of communication chains.

However, in the same field of endeavor, Whitehill discloses determining multiple transmit power levels and receive gain levels (i.e., determining the power-level and gain, see also 0053 and steps 1010 & 1050-fig.5) associated with the first number of communication chains (i.e., 154a-154r, fig.5 of Ling), see also 0051-0052. Therefore, it

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would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 5, 28 & 33, Ling discloses transmitting the first number of training symbols (modulation symbols) from the first number of communication chains (122a-122t, fig.3).

Ling- Fujii does not explicitly disclose transmitting a clear to transmit response (claim 5) and calibrating a number of transmit and receive chains included in the first number of communication chains (claims 5, 28 & 33).

However, in the same field of endeavor, Whitehill discloses transmitting a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) transmitting a clear to transmit response and the first number of training symbols from the first number of communication chains; and calibrating a number of transmit and receive chains included in the first number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Fujii's system with the motivation being to optimize the transmission

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parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 6 & 30, Ling- Fujii does not explicitly disclose estimating a communications channel associated with the first number of communication chains based on the second number of training symbols.

However, in the same field of endeavor, Whitehill discloses estimating a communications channel associated with the first number of communication chains based on the second number of training symbols (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling-Fujii's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

5. Claims 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling in view of Fujii as applied to claims 1 and 11 above, and further in view of Schramm (US 2002/0110138 A1).

Regarding claims 10 & 19, Ling-Fujii does not explicitly disclose transmitting a header including a length specification corresponding to the first number of training symbols.

However, in the same field of endeavor, Schramm (US 2002/0110138 A1) discloses transmitting a header including a length specification (i.e., 3.2 μ s-fig.1b) corresponding to the first number of training symbols (fig.1b-wherein a header includes a length corresponding to the first number of training symbols). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Schramm's teaching of OFDM frame's header having the length corresponding to training symbols to Ling-Fujii's system with the motivation being to allow time duration for channel estimation to provide an accurate link quality measure of a transmission link in a OFDM transmission system.

6. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling in view of Fujii as applied to claims 26 and 31 above, and further in view Hammerschmidt (US-2004/0151145 A1)

Regarding claims 36-37, Ling-Fujii does not explicitly disclose the first device comprises a plurality of antennas, wherein each antenna is coupled to one of the number of transmit chains and one of the number of receive chains, wherein the transmit chain and the receive chain coupled to the antenna are not shared by other antennas.

However, in the same field of endeavor, Hammerschmidt discloses the first device comprising a plurality of antennas (224a-224b, fig.2), wherein each antenna (224a or 224b) is coupled to one of the number of transmit chains (244a & 244b, fig.2) and one of the number of receive chains (246a & 246b, fig.2), wherein the transmit chain and the receive chain coupled to the antenna are not shared by other antennas (0030). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Hammerschmidt's teaching to Ling-Fujii's system to improve communication channel by extending the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between AP and a CLT (client terminal), to reduce emitted RF power and to reduce electrical power consumption.

Response to Arguments

7. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUONGCHAU BA NGUYEN whose telephone number is (571)272-3148. The examiner can normally be reached on Monday-Friday from 8:15 a.m. to 4:45 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PHUONGCHAU BA NGUYEN/
Examiner, Art Unit 2464